

Machine Guarding

Amy Riley
MASC Safety Technician

Machine Guarding

■ *Four Types of Guards*

- *Fixed*
- *Interlocked*
- *Adjustable*
- *Self-Adjusting*

■ *Citations:*

- *No guard on grinders.*
- *Wrong speed or unknown speed on grinding wheel*

Machine Guarding

■ *Major Points*

- *Cage-type guarding shall not have any opening larger than ½ inch.*
- *All safety attachments and guards furnished by the manufacturer shall be used and maintained at all times.*
- *All machines designed for a fixed post shall be securely anchored to prevent walking or moving.*

Machine Guarding

- ***Fatalities***

- *Many fatalities have resulted from employees getting caught in rotating shafts such as well boring drills & lathes.*

Machine Guarding

- *Fixed Guards*
 - *Not dependent on any other part to perform the function*
 - *Usually made of sheet metal, screen, bars or other material which will withstand the anticipated impact*
 - *Generally considered the preferred type of guard.*
 - *Simple and durable*
 - *A permanent part of the machine*

Machine Guarding

- *Interlocked Guard*
 - *Usually connected to a mechanism that will cut off the power automatically*
 - *Could use electrical, mechanical or hydraulic systems*
 - *Should rely on a manual reset system*

Machine Guarding

- *Adjustable Guard*
 - *Very flexible to accommodate various types of stock.*
 - *Manually adjusted*

Machine Guarding

- *Self-Adjusting*
 - *The opening is determined by the movement of the stock through the guard.*
 - *Does not always provide maximum protection.*
 - *Common complaint- reduced visibility at the point of operation.... “I can’t see what I’m doing!”*

Subpart O - Machinery & Machine Guarding (1910.211 - 222)

Standard: 1910.

Machine guards - General

212(a)(1) 1,726

Grinders - Tongue guards

215(b)(9) 1,491

Pulleys

219(d)(1) 1,285

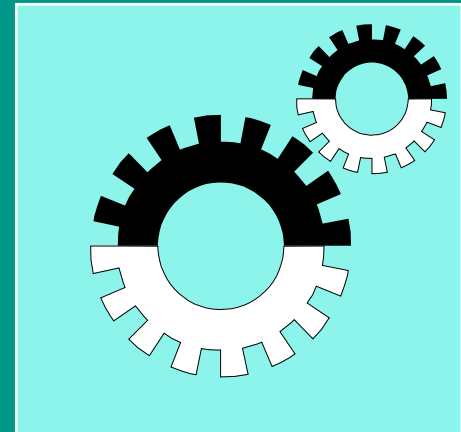
Point of operation

212(a)(3)(ii) 1,100

Grinders - Work rests

215(a)(4) 1,027

Number of Serious Violations - FY 94



Machine Guarding



- *This picture, taken through a window, shows an unguarded saw blade.*

Machine Guarding



- *Once inside the building, we find more violations. An ungrounded plug, an electrical cord with an illegal splice.*
- *Don't let these violations sneak up on you!*

Machine Guarding



- *This shows a pulley system which has correct guards to keep fingers and tools away from pinch points.*

Machine Guarding



- *This man lost his finger when a machine in a foundry cut it off.*
- *There was no guard in place, as required by law, to keep his finger out of a point of contact.*

Machine Guarding



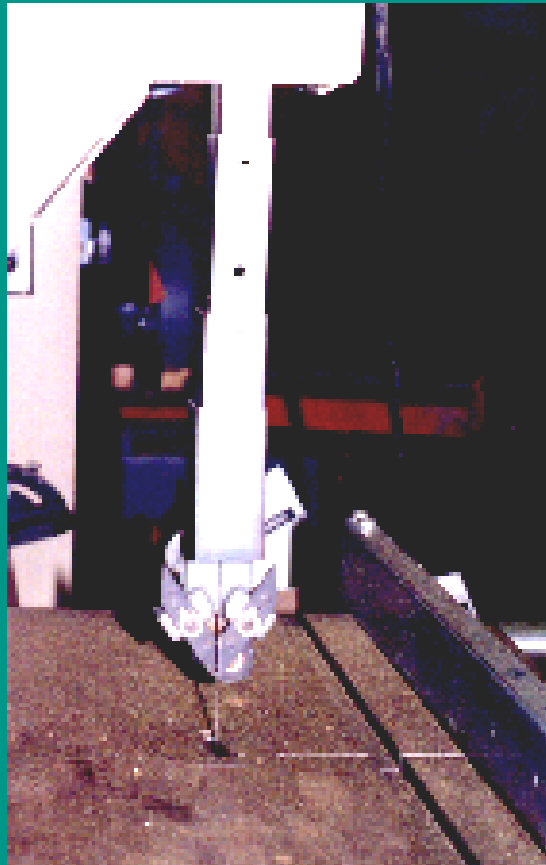
- *This grinder has a fixed guard on the side to keep fingers away from the moving grind stone*

Machine Guarding



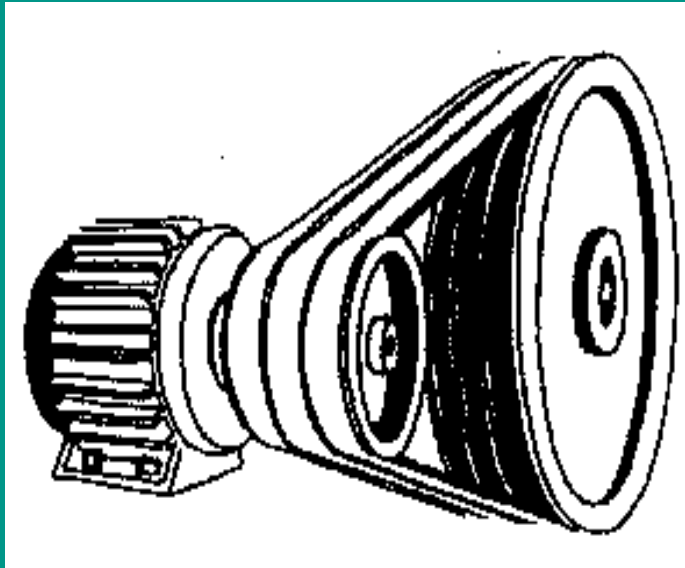
- *This is an example of a self-adjusting guard that automatically moves to accommodate different size stock.*
- *Note the unguarded pulley underneath.*

Machine Guarding



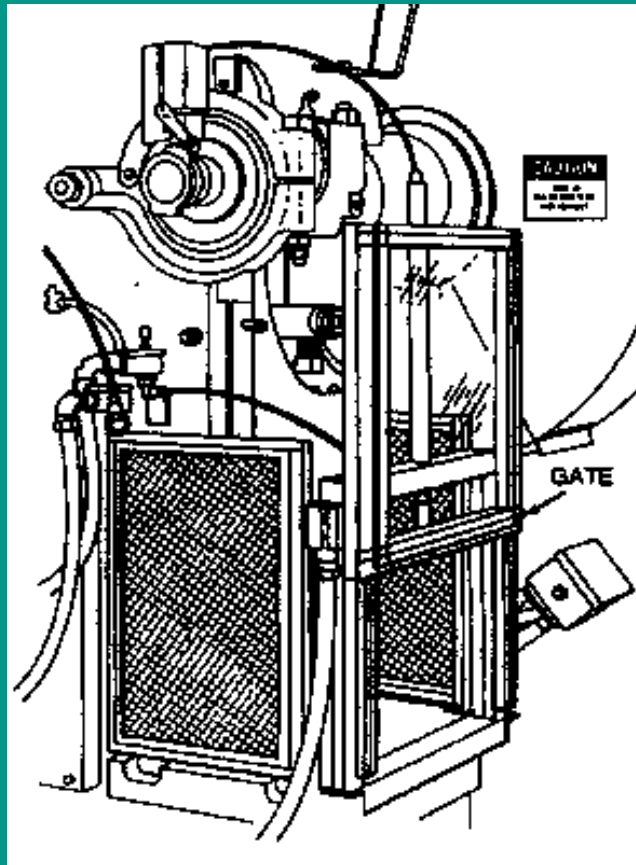
- *This is an example of an adjustable guard.*
- *The operator must move the guard to accommodate different size stock on this band saw.*

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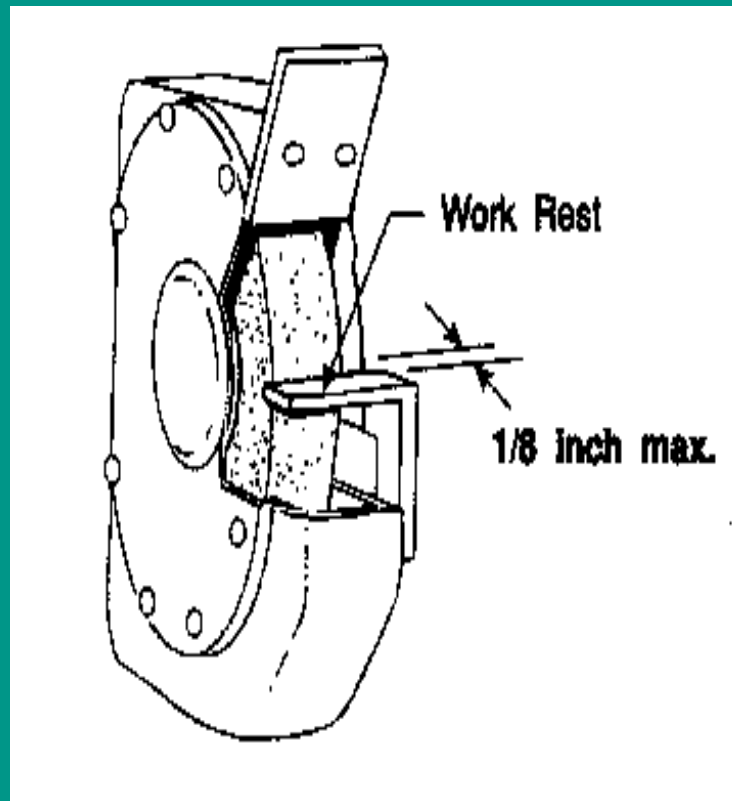
- *Transmission sources such as this should be guarded to keep hands and arms out of them.*

Machine Guarding



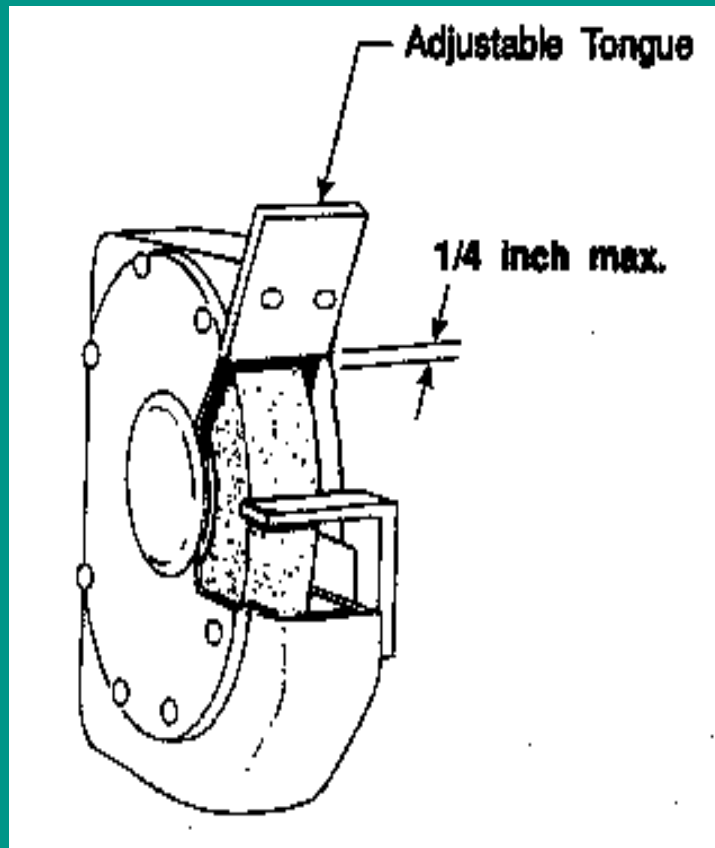
- *This machine is using a gate system to keep hands out of the point of operation area.*

Machine Guarding



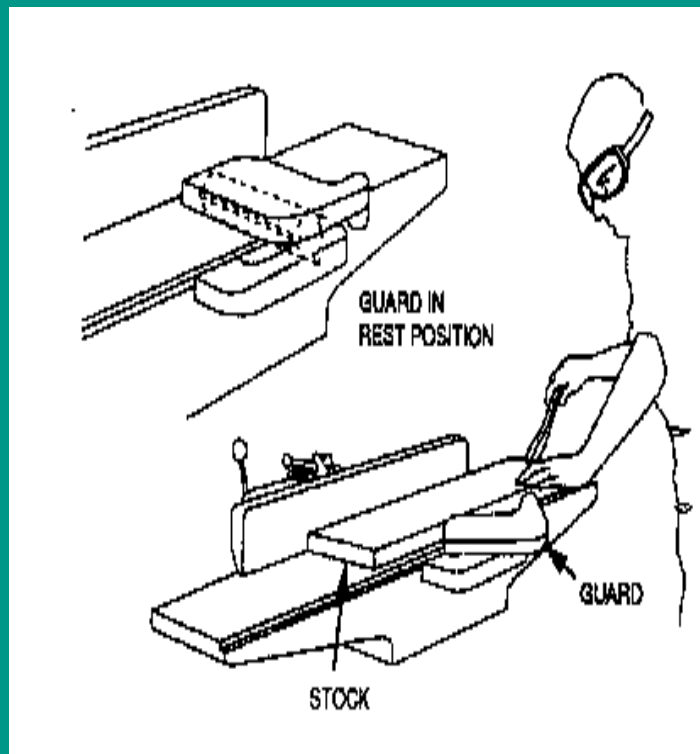
- *Bench Grinders require a work rest with a maximum clearance of 1/8 inch to insure that the work does not get drawn into the grinding wheel.*

Machine Guarding



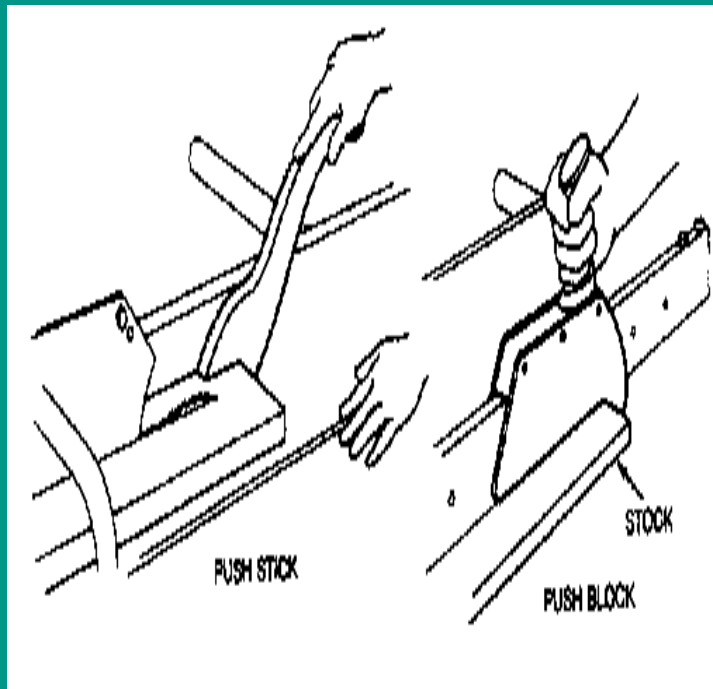
- *The top clearance on a bench grinder should not exceed 1/4 inch.*

Machine Guarding



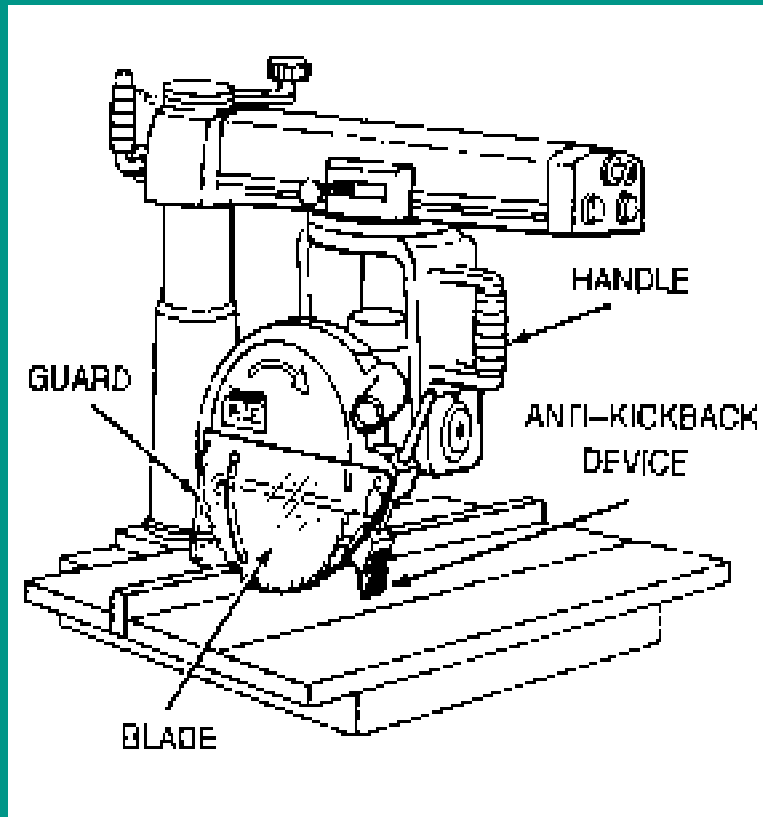
- *This wood working device has an adjustable guard that moves as the wood is fed into it.*

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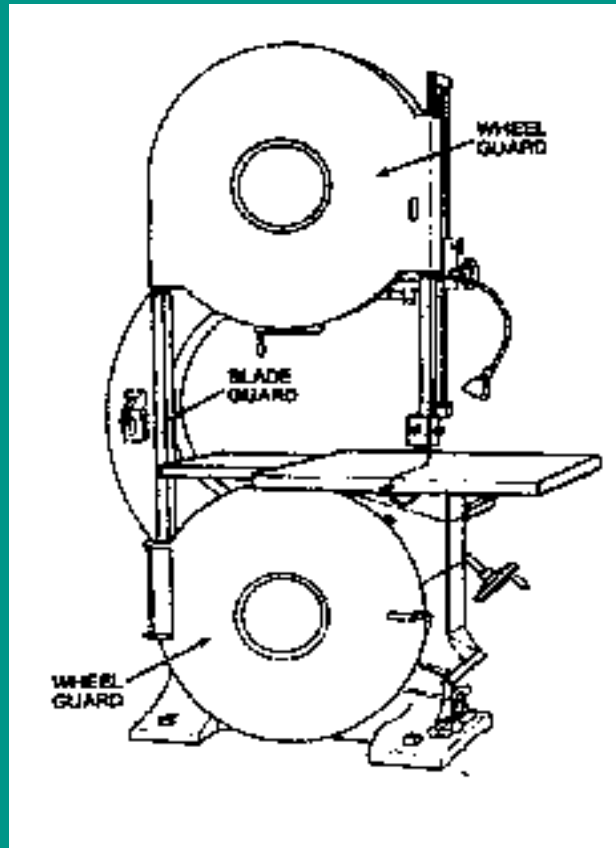
- *When working closely with wood cutting machines, a push stick can keep your fingers on the end of your hands!!*

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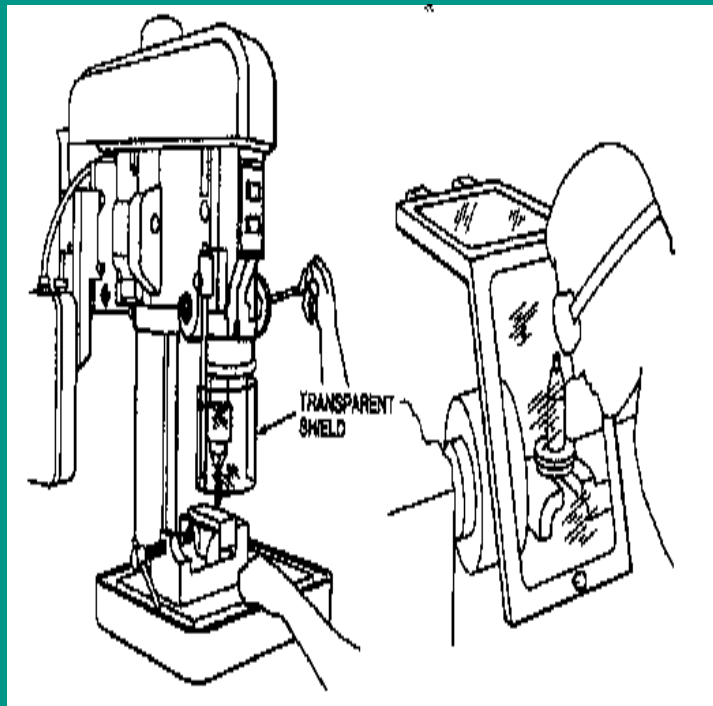
- *This saw has:*
 - *a blade guard*
 - *anti kickback device*
- *It should have a retracting device to automatically bring the saw back into position*

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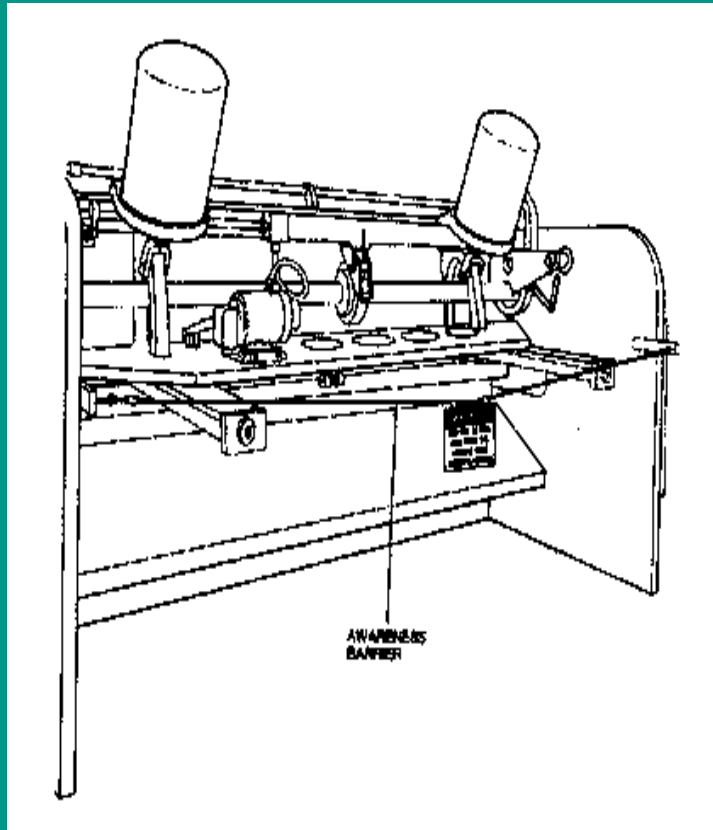
- *Moving wheels are guarded with cover plates.*
- *Adjustable guard on the blade at the point of operation.*

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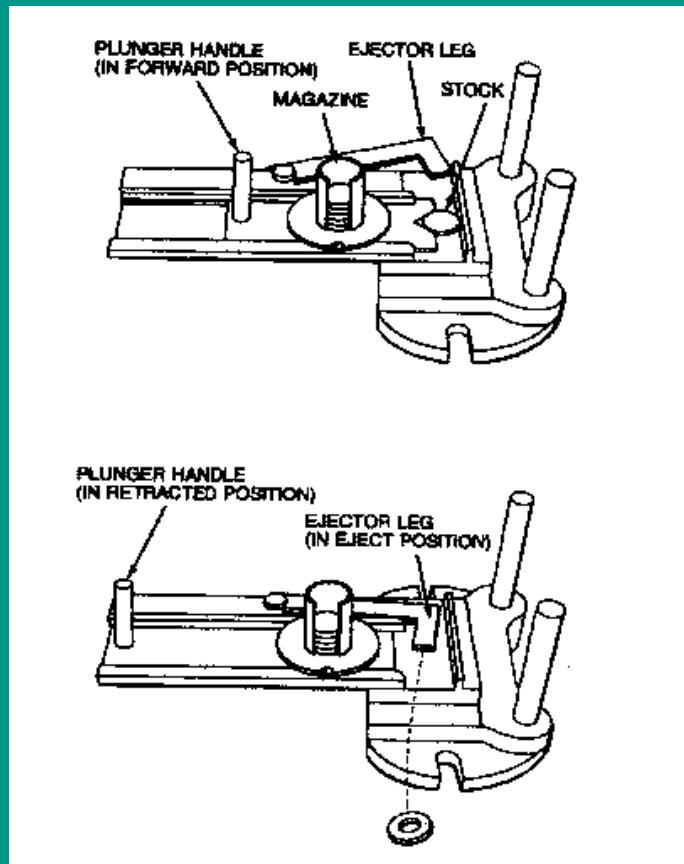
- *A shield of safety glass prevents sparks and particles from striking the worker.*
- *Rotating shafts are required to have guards on them.*

Machine Guarding



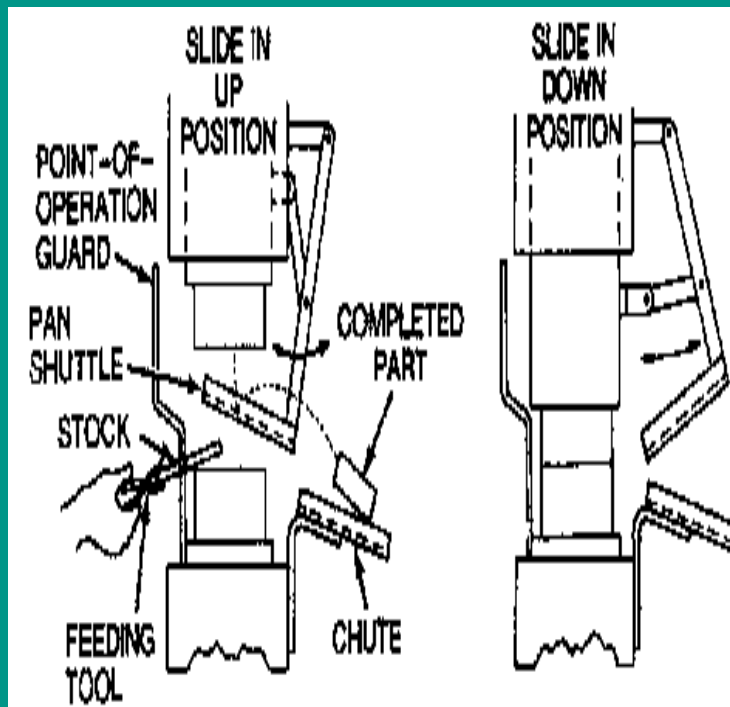
- *This machine is using a wire guard to stop the machine when a worker gets too close.*

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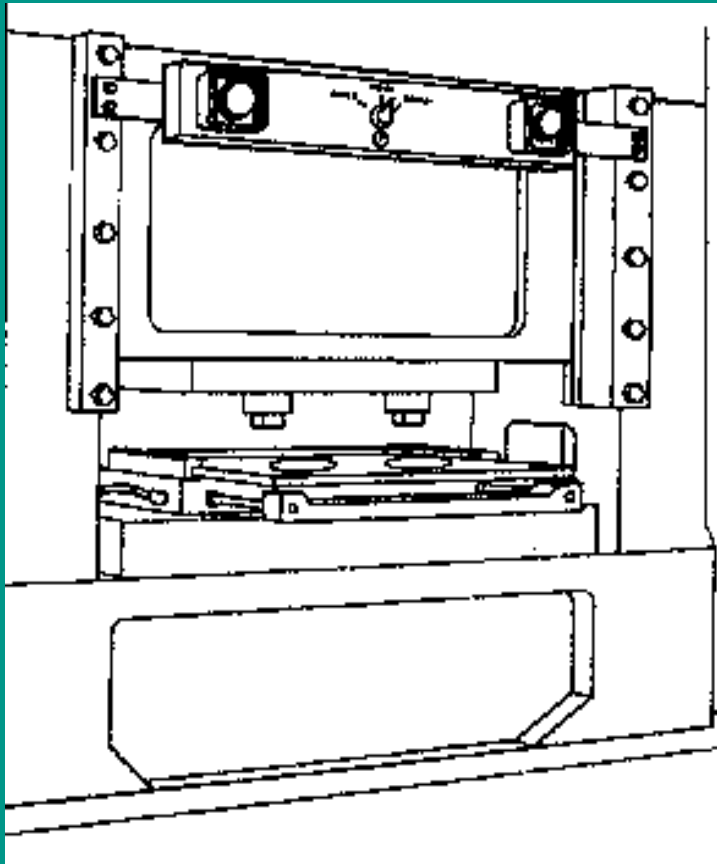
- *Instead of having the worker pick the finished product out of the die with their fingers, this system uses an automatic device to push the product out of the die.*

Machine Guarding



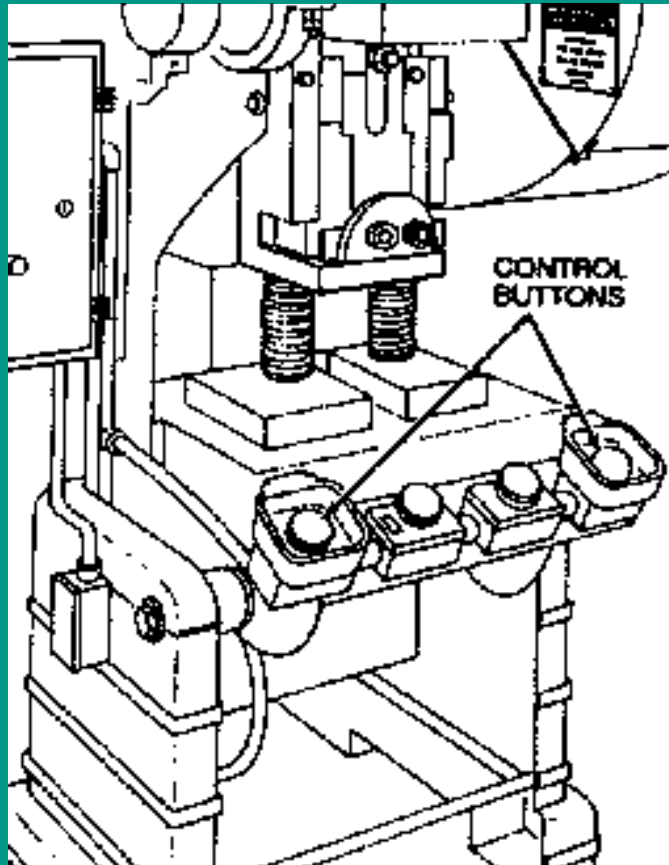
- *This machine ejects the finished product automatically.*

Machine Guarding



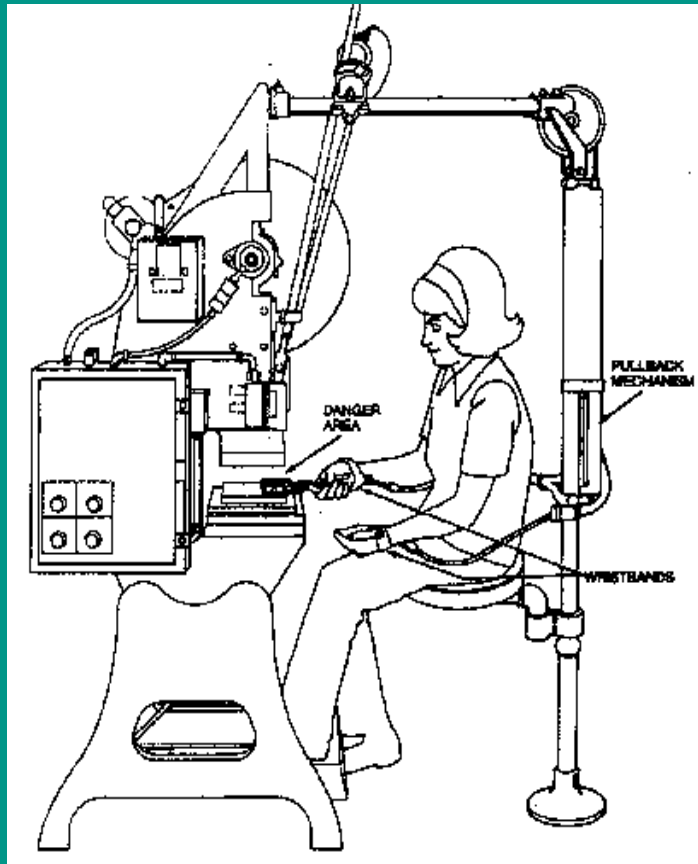
- *In order to operate this press the operator must push both buttons at the top of the machine.*
- *This insures that his hands are not in the point of operation area when the press activates.*

Machine Guarding



- *The operator must press both of the control buttons at the same time to operate this press.*

Machine Guarding



- *This operator has wrist cuffs attached to her arms to keep her from putting them in harms way.*
- *Some versions will automatically pull the operators hands back when the press cycles.*

Questions

- *If you have any questions or concerns please contact the MASC Regional Safety Manager at (303) 497-3912 or Rhonda.S.Carpenter@noaa.gov.*